Technology: Microelectronics

Toshiba's GaAs MESFET switch ramps in 2005

A new small, low-profile GaAs MESFET, single pole, dual throw switch has been introduced by Toshiba Corp.

The compact switch is well suited for use in multi-band/-mode cellular antenna switch modules, Bluetooth modules and Wireless LAN applications.

This GaAs MESFET MMIC features 0.35dB insertion loss at 1GHz (0.40dB at 2GHz) and 24dB isolation at 1 and 2GHz.

Power handling performance is 17dBm P1dB at 2.5GHz which is very good for the extremely small and low profile package.

The TG2217CTB SPDT switch is offered in a very small and low profile leadless 6-pin CSP package.

It operates from DC to 3GHz requiring two control positive voltages, also acting as bias supply. The control voltages are very low and 2.4V switching operation is possible.

Samples are being made available by Toshiba priced at $0.20 each.

Volume production is scheduled for the first quarter of 2005, when production pricing will become available.

To improve cost effectiveness, Toshiba's new efficient, chip scale package mass production line will be used to manufacture this device.

Alcatel & Thales take DGA € 1.3bn award

The French defense procurement agency DGA awarded Thales the contract for the construction of the Syracuse III ground segment. Alcatel subsidiary, Alcatel Space is the main subcontractor to Thales for this project. The overall contract is worth €1.3bn over 15 years, of which 30% represents Alcatel's portion.

The Syracuse III ground segment is a vital complement to the space segment, providing all French armed forces, at home or abroad, with high-speed, reconfigurable and secure satellite communications. The contract includes the construction of 600 new ground stations, both land- and ship-based to provide data-rates and mobility performance tailored to requirements, facilitated by the power and flexibility of the Syracuse satellites.

Alcatel Space is working closely with Thales, the ground segment prime contractor. Alcatel Space is responsible for adapting the fixed ground stations in France, a portion of the tactical ground stations and will also participate in construction of the large very-high-rate mobile ground stations and the naval stations.

For the first time in a military system, Alcatel Space will implement an ADSL broadband satellite solution, the distribution network, based on civilian sector developments in satellite-based Internet access.

A joint success for Thales and Alcatel, this contract ensures the continuity of the Syracuse military satellite communications program, for which the DGA originally named Alcatel as prime contractor, associated with Thales, in November 2000, after competitive bidding.

It consolidates Alcatel Space's leadership in the milsatcom sector, by confirming its strong position in both satellites and ground systems. Alcatel Space is also active in the civil-military satellite export market, through Koreasat 5 in South Korea and Star One C1 in Brazil.

Simultaneously this contract confirms the importance of the defence sector for Alcatel Space. Alcatel Space continues to invest in this strategic market alongside its position in the commercial telecommunications market.

The Syracuse constellation comprises two new-generation satellites, Syracuse 3A and 3B. Starting in 2005, they will be the first in the world to supply secure, high-speed and fully reconfigurable X-band links.

NATO's C3 agency recently chose a European joint consortium, including Syracuse, Skynet (UK) and Sicral (Italy) over an American competitor, to provide SHF (super high frequency) communications for member countries, within the scope of the post-2000 NATO Satcom programme.

Sirenza acquires ISG Broadband

Sirenza Microdevices Inc has signed a definitive agreement to acquire ISG Broadband Inc for approximately $7m cash, with additional cash consideration of up to $7.15m based on margin contribution for sales of selected integrated circuit (IC) and satellite radio receiver/active antenna products through 2007.

ISG Broadband, a privately held subsidiary of California Eastern Laboratories (CEL), is a designer of RF gateway module and IC products to enable the delivery of broadband communication services to the home. The acquisition has been approved by the boards of directors of each company and ISG's shareholders and is subject to customary closing conditions.

ISG will be integrated into Sirenza's Amplifier Division and relocated to Sirenza's Sunnyvale facility. In connection with the proposed transaction, Donald Alfson, president of ISG Broadband, will join Sirenza as VP global outsourcing and will report to Charles Bland, COO.

"We believe the acquisition of ISG Broadband is a significant step toward achieving our strategic goals of diversifying our end markets and strengthening our world-class RF core competencies," says Sirenza's president and CEO Robert Van Buskirk. "ISG enables our penetration into the growing CATV-based, voice-over-IP (VoIP) market, launches us into the accelerating satellite radio market and establishes the foundation for future participation in the expanding HDTV and set-top box markets with silicon-based transceiver/tuner IC products now under development at ISG.

ISG's module-based products, currently in volume production, leverage our state-of-the-art multi-chip module (MCM) manufacturing capabilities; the highly integrated IC products build upon our SiGe semiconductor expertise and bring us proven expertise in RF CMOS and BiCMOS semiconductor technology and design."

Paul Minton, president of CEL noted "Sirenza and ISG have complementary technologies and products, and the combined company can leverage Sirenza's extensive high-volume IC production capabilities for the transceiver/tuner IC products currently in development." Sirenza expects the acquisition to be completed in December 2004.

TRW Autocruise AC20 radar

TRW Autocruise Ltd, TRW Automotive's adaptive cruise subsidiary, has launched its next generation AC20 radar system. The enhanced radar technology will appear on a D segment platform of a major German vehicle manufacturer in spring 2005. TRW Automotive's ACC business is based in Brest, France. The team there has developed the new radar in-house in co-operation with TRW braking engineers in the UK, Germany and the US.

The system uses MMIC based radar sensing technology to detect other vehicles on the road ahead. The AC20 radar is based upon one transmit-receive module at 77GHz, connected to an electronic board. The T/R module includes 3 GaAs MMICs (Monolithic Microwave Integrated Circuits). Their role is to generate a radar signal and then to detect echoes from all vehicles located in the radar beam.

The electronic board has usual silicon ICs which processes the radar echoes and communicates all relevant information to the vehicle (acceleration or braking). Radar technology operates in all weather conditions, unlike laser based systems used by some competitors, which rely on a clear optical path.

Peter Austen, MD of TRW Autocruise said: "Company and industry research has demonstrated that ACC significantly aids driver comfort by reducing driving stress and fatigue. The research shows that traffic would be really regulated once ACC systems are generalised on vehicles."

TRW Automotive currently provides ACC systems to Volkswagen for its Phaeton range, a number of truck manufacturers and is actively collaborating with a number of companies for future platforms.

The new radar is half the size and weight of TRW's current AC10 model at significantly reduced cost. It offers several enhanced driver assistance function options such as "follow to stop," "collision mitigation" and is a support for future assisted "stop and go" systems.

The ACC, a radar based system which acts as a normal cruise control, holds the vehicle at a set speed until a slower vehicle appears in front when it automatically accelerates and brakes the vehicle to keep a driver-selected gap (constant time interval) behind the slower vehicle.

The information from the 77GHz radar is analyzed by electronics contained in the ACC unit. The new radar and enhanced transmit-receive module captures data for an additional 50 meters over the previous system - extending its range to 200 meters.

"In addition, with the cost reduction we are now able to propose, we've seen significant interest from a number of vehicle manufacturers, especially within the D-segment," says Austen.

The new radar's control unit offers enhanced driver assistance features including follow to stop, where the system brings the vehicle to a complete standstill. Assisted stop and go, an optional feature planned to be available for future applications, will automatically stop and accelerate the vehicle in stop and go traffic. Furthermore, an additional future option - emergency brake assist - will, when appropriate, automatically apply the vehicle's brakes to prevent any delay of reaction from the driver confronted with an obstruction.

II-VI for SWIFT BAT sensors

eV Products, a division of II-VI Inc, that produces solid-state Cadmium Zinc Telluride (CdZnTe) (eV-CZT) radiation sensing and imaging systems, has successful launched 32,768 eV- CZT sensors into orbit on on board NASA's SWIFT satellite.

The SWIFT Satellite is designed to detect and image gamma-ray bursts, which are thought to be related to the collapse of stars in the galaxy. SWIFT scientists will now have a tool dedicated to solving the gamma-ray burst mystery.

The eV-CZT sensors are integrated into a 1.2-by-0.6-meter array called the Burst Alert Telescope. This eV-CZT-based BAT senses incoming gamma-rays and, within seconds of detecting a burst, signals SWIFT to rotate to align other on-board telescopes to observe and measure the burst's afterglow.